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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,385	10/09/2001	Raymond Chi-Hing Chiu	56390US002	1262
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3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
EXAMINER FIORILLA, CHRISTOPHER A				
ART UNIT			PAPER NUMBER	
1731				

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/975,385

Applicant(s)

CHIU ET AL.

Examiner

Christopher A. Fiorilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/31/02 2/19/03.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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1. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In each of the independent claims the phrase "the curable material between the mold and the substrate" has no antecedent basis.

Claim 11 appears to be grammatically incorrect.

2. Claims 1,2,7-19 and 24-27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the production of ceramic microstructures, does not reasonably provide enablement for the process as generically claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-6, 10, 11 and 16-27 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 866 487.

EP 0 866 487 teaches the claimed process of making a microstructured assembly. The method of EP 0 866 487 includes the steps of:

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forming a substantially uniform coating of a curable material on a substrate (Figure 7), the coating defining a leading edge;

contacting the coating with a mold starting at the leading edge (e.g. Figure 7), the mold forming in the curable material a plurality of barrier regions connected by intervening land regions (e.g. page 4, lines 6-7) having substantially uniform center thickness (e.g. Figure 7);

curing the curable material between the mold and the substrate (e.g. Figure 7, item 34, page 4, line 36; page 5, lines 43-44); and

removing the mold (e.g. Figure 7).

EP 0 866 487 also discloses a curable material which comprises ceramic (e.g page 4, line 55) and binder, debinding the curable material after curing (e.g. page 6, line 34), firing after removing the mold (e.g. page 6, lines 35-36), providing a plurality of electrodes on the substrate (p. 4, line 15).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 3-6, 10, 11, 12, 14, 15, and 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 866 487 in view of Carre et al. (5,853,446) for the reasons as set forth above and further:

EP 0 866 487 does not disclose that the coating area is smaller than the surface area of the substrate.

Carre et al. discloses a method similar to that of EP 0 866 487 for forming ribs on a substrate. Note that Carre et al. discloses that the coating area is smaller than the surface area of the substrate (see e.g. Figure 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the coating to such a smaller area to obtain a product with the desired configuration.

The configuration of the coating and the land areas/electrodes is an obvious matter of product design choice dependent on the desired configuration of the final product.

Determination of the specific coating smoothness would have been well within the realm of routine experimentation to one having ordinary skill in the art at the time of the invention. These parameters would have obviously been selected to optimize the process conditions and/or the properties of the final product.

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8. Claims 7,8,9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 866 487 in view of Carre et al. (5,853,446) as applied to claims 1, 3-6, 10, 11, 12, 14, 15, and 16-27 above, and further in view of Chiu et al. 2001/0007682.

Chiu et al. discloses a stretchable mold made from a polymer film which is wound and unwound on rolls to impart a rib structure into a moldable material.

It would have been obvious to one skilled in the art at the time of the invention to use this type of mold in the process of EP 0 866 487 in view of the teachings in these references that both types of molds are suitable for the formation of rib structures in moldable materials. The manufacture of a polymer film mold would be less expensive than the production of a metal mold.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is (571) 272-1187. The examiner can normally be reached on M-F, 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Christopher A. Fiorilla**  
**Primary Examiner**  
**Art Unit 1731**

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